

Caltrans Electrician Series

California State Personnel Board Specification

Series established September 15, 1987

Scope

This series describes electrician classifications utilized by the California Department of Transportation (Caltrans) in conjunction with the maintenance and operation of State transportation facilities. Positions in this series may perform or supervise the installation, maintenance and repair of all types of electric and electronically controlled devices on facilities including but not limited to: traffic signals, ramp meters, toll bridge electrical and electronic devices, highway and tunnel lighting, pumps, ventilation equipment, illuminated signs, motors, generators, and devices associated with maintenance-related buildings (shops, roadside rests, etc.); and do other related work.

Entry Levels

Entry into this series can be made at the Caltrans Electrical Technician or Caltrans Electrician I or II levels.

Factors Affecting Position Allocation

Complexity and variety of assignments; degree of independent action and skill; supervision exercised and received.

Schem Code	Class Code	Class
QO35	6939	Caltrans Electrical Technician
QO32	6938	Caltrans Electrician I
QO29	6924	Caltrans Electrician II
QO31	6925	Caltrans Electrical Supervisor

Caltrans Electrician Series Specification - Class Titles and Codes

Definition of Levels

Caltrans Electrical Technician

This is the learner and first working level of the series. In the field and on toll bridges under supervision, incumbents assist in the installation, construction and repair of less complex electrical and electronic devices on facilities.

Caltrans Electrician I

This is the first journey level for the series. In the field and on toll bridges, incumbents independently or with others install, repair and maintain a wide variety of electrical and electronic devices on facilities.

Caltrans Electrician II

This is the full journey level for the class. Under direction, incumbents are responsible for the installation, maintenance and repair of the most complex electric and electronically controlled devices on facilities. Incumbents may also perform lead work over lower level electricians.

Caltrans Electrical Supervisor

This is the full supervisory level. Incumbents assign work; evaluate performance; promote and enforce safety rules; develop, maintain and review appropriate reports; and perform the more complex technical electrical or electronic work.

Typical Tasks

All Levels:

Operate light trucks, vans and automotive vehicles; may drive heavy trucks if properly licensed.

Caltrans Electrical Technician

Incumbents perform simple preventative maintenance tasks such as painting, cleaning and routine testing; do laboring work such as pouring and finishing concrete bases; pulling wires through conduits; repairing conduits, poles and wires; relamping traffic signals and illuminated signs; and flag traffic and installs necessary barriers for safety purposes.

Caltrans Electrician I

Assists higher level Electricians in the more complex activities; may routinely patrol an assigned area; may perform routine bench maintenance activities or assist higher level journeypersons in the bench or field repair of more complex devices and circuitry.

Caltrans Electrician II

Incumbents may construct and maintain traffic signals and highway lighting systems, electrical and electronic apparatus (up to and including 12,000 volts -high voltage equipment is disconnected and locked out prior to any work being done) associated with bridges and related structures, including but not limited to: heaters, air conditioners, carbon monoxide analyzers and detectors, engine-driven generators, transformers, switch boards, substation control centers, remote-control supervisory systems, master and secondary self-covering clock systems, large storage battery installations, fire alarm systems, airway and navigation warning devices, tow service telephones, tow service call boxes, and toll collection equipment.

In addition, incumbents troubleshoot systems; estimate repair times and costs; keep records and make out work reports. On swing and night shifts, incumbents are required to work independently without close supervision. Incumbents may also serve as leadworker by training less-skilled workers, preparing lists of materials needed, making daily work reports, and keeping records.

Caltrans Electrical Supervisor

In the field and on toll bridges, supervises the installation, maintenance and repair of a wide variety of electric and electronic and related equipment including traffic signals, highway lighting, pumping devices, motors, alarms, heating and air-conditioning systems; advises in the selection of electrical materials and specialized equipment; supervises the maintenance of an electrical shop and the care and maintenance of electrical and other tools and equipment; in a small district, is in charge of the maintenance, installation and repair of electronic devices on facilities; in a medium or large district, assists a higher level Electrician and directs the work of Electricians and other employees; in addition to supervisory responsibilities, may perform the more complex technical electrical or electronic work; instructs and trains subordinates and evaluates their performance; maintains records and prepares reports.

Minimum Qualifications

All Levels:

Possession of a valid Class C driver license. (Applicants who do not possess this license will be admitted to the examination but must secure the license prior to appointment.)

Caltrans Electrical Technician

EITHER I

An Associate or Certificate of Arts Degree in Electrical or Electronic Technology.

OR II

Graduation from an electrical or electronic trade school approved by the California Department of Education (or similar agency for out-of-State schools, including military electrical or electronic trade schools). and One year of experience in the installation, construction, maintenance and repair of electrical equipment and electronic control devices.

(In regard to the education requirements of the above patterns, students who are within six months of graduation will be admitted to the examination, but must present evidence of graduation prior to appointment.)

Caltrans Electrician I

EITHER I

Two years in the California state service performing the duties of a Caltrans Electrical Technician.

OR II

Completion of a recognized apprenticeship as an electrician. (Apprentices who are within six months of completion of their apprenticeship may be admitted to the examination, but they must present evidence of completion of the apprenticeship prior to appointment.)

OR III

Four years of successful and varied experience in the repair, maintenance and installation of electrical equipment and electronic control devices. An Associate of Arts or Certificate of Arts Degree in Electrical Technology may be substituted for two years of the required experience. (Students who are within six months of completing their degree will be admitted to the examination, but must present evidence of completion prior to appointment.)

Caltrans Electrician II

EITHER I

Two years in the California state service performing the duties of a Caltrans Electrician I.

OR II

Completion of a recognized apprenticeship as an electrician. (Apprentices who are within six months of completion of their apprenticeship may be admitted to the examination, but they must present evidence of completion of the apprenticeship prior to appointment.) and Two years of additional experience in the repair, maintenance and installation of electrical equipment and electronic control devices.

OR III

Five years of successful and varied experience in the repair, maintenance and installation of electrical equipment and electronic control devices. An Associate of Arts or Certificate of Arts Degree in Electrical Technology may be substituted for two years of the required experience. (Students who are within six months of completing their degree will be admitted to the examination, but they must present evidence of completion prior to appointment.)

Caltrans Electrical Supervisor

Two years in the California state service performing the duties of a Caltrans Electrician II.

Knowledge, Skills and Abilities

All Levels:

Knowledge of: Theory of electricity and electronics; basic terminology, principles, methods, materials, tools and equipment used in the installation, maintenance and repair of electrical and electronic equipment, including solid-state circuits and transistors; safety precautions while working with electricity, including the National Electric Code, the Electrical Orders of the Division of Industrial Safety, and CAL/OSHA safety and health regulations.

Skill in: (Separate description listed under each level.)

Ability to: Communicate at a level required for successful job performance; follow directions; work with hand tools; read electrical schematic drawings and construction blueprints; analyze situations and adopt effective courses of action.

Caltrans Electrical Technician

Knowledge of: (Described under "ALL LEVELS")

Skill in: Simple installation construction, testing and repair of less complex electrical and electronic devices and facilities; simple preventative electrical and electronic maintenance tests.

Ability to: (Described under "ALL LEVELS")

Caltrans Electrician I

Knowledge of: (Described under "ALL LEVELS")

Skill in: Installing, repairing and maintaining a wide variety of electrical and electronic devices.

Ability to: Maintain records and make reports; interpret plans, and estimate repair costs.

Caltrans Electrician II

Knowledge: The safety precautions required in the installation of traffic signal equipment, toll bridge electrical equipment, and highway lighting systems; U.S. Coast Guard and Civil Aeronautics Administration rules and regulations regarding hazard markers and warning signals.

Skill in: Repairing a wide variety of delicate traffic control devices, including repairing electrical and electronic apparatus associated with toll bridges and related structures in the field.

Ability to: Make rough sketches and draw diagrams, list material needs, complete work reports; work independently without close supervision, and establish and maintain effective, cooperative relations with those contacted in the work; act as a leadworker; instruct unskilled and semiskilled assistants; establish and maintain a safe work environment; order materials and equipment, and make daily work reports.

Caltrans Electrical Supervisor

Knowledge of: Techniques of effective supervision; labor relations, safety and health objectives, regulations, and practices and a supervisor's role in safety, health, Affirmative Action/Equal Opportunity Programs and the processes available to meet program objectives.

Skill in: Making difficult and complex installations and repairs and in locating causes of failure.

Ability to: Plan, layout, train and inspect the work of a crew of electricians; analyze management information system information; effectively contribute to the Department's safety, health, affirmative action/equal opportunity objectives.

Special Personal Characteristics

All Levels:

Visual and color acuity adequate to successfully perform the essential functions of the job; willingness to work at odd hours and to be available for day or night calls; willingness to stay abreast of current technological changes in the fields of electricity and electronics; willingness to work up to 550 feet above pavement or water and in the midst of traffic; ability to withstand working under adverse (e.g., cold, wet, windy) weather conditions.

Additional Desirable Qualification

All Levels:

Possession of a valid and unrestricted Class B or Class A driver license.

Drug Testing Requirement

Caltrans Electrical Technician

Caltrans Electrician I

Caltrans Electrician II

Applicants for positions in these classes are required to pass a drug screening test. Testing of current employees who are applicants in an examination or who are transferring is permitted only if the person does not have a current appointment to a class for which drug testing is a requirement.

Class History

Class	Date Established	Date Revised	Title Changed
Caltrans Electrical Technician	07/08/1966	07/01/1993	09/15/1987
Caltrans Electrician I	07/08/1966	07/01/1993	09/15/1987
Caltrans Electrician II	09/15/1987	07/01/1993	--
Caltrans Electrical Supervisor	09/15/1987	07/01/1993	--
Caltrans Electrician Series History - Dates Established, Revised, and Title Changed			

Updated 6/3/2012